

PROPOSED ACTION AND ALTERNATIVES

The objective of this Environmental Assessment is to evaluate the proposed action and alternatives in accordance with NEPA. Interconnection studies performed by SDG&E and reviewed by the California ISO determined that interconnection of the Otay Mesa Generating Project to the SDG&E electrical grid requires reconductoring of the existing Miguel-Tijuana 230 kV transmission line from the plant to SDG&E's Miguel substation. The proposed OMGP is located adjacent to the existing Miguel-Tijuana 230 kV transmission line, which facilitates efficient, low impact interconnection to the SDG&E electrical grid. No other feasible alternatives for interconnecting the OMGP to the SDG&E grid have been identified. The only identified alternative to the proposed action is the No Action Alternative.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, SDG&E would not construct or operate the proposed facilities for interconnecting the OMGP to the SDG&E grid. Under the No Action Alternative, Presidential Permit 68 would not be amended by DOE, the existing Miguel-Tijuana line would not be modified/reconductored, and the OGMP would not be constructed. Potential benefits from the project, as summarized in Section 1.3 (Purpose and Need), would not be realized. Potential impacts related to the project, whether short or long term, direct or indirect, project specific or cumulative, would not occur.

If the proposed amendment of Presidential Permit PP-68 is not granted, the OMGP would not be able to interconnect to the SDG&E grid via the Miguel-Tijuana line and the Miguel substation. Overall, there would be a loss of economic benefits associated with the project, including: 1) its contribution to a safe and reliable energy supply; 2) purchase of equipment and materials; 3) construction costs, labor costs; 4) local infrastructure improvements; and 5) local tax revenues.

2.2 PROPOSED ACTION

Interconnection of the OMGP to the SDG&E grid involves the following components, which constitute the proposed project:

- Construction of a 230 kV switchyard encompassing approximately 5 acres on the northeast portion of the 46-acre power plant site (see Figures 2-1 and 2-2);
- Construction of an approximately 0.1-mile-long electrical transmission interconnection from the plant switchyard to the existing Miguel-Tijuana line (see Figure 2-3 and the initial 0.1 mile of Route 1 on Figure 2-2); and

- Reconductoring of the Miguel-Tijuana 230 kV line to the Miguel substation approximately 9 miles north of the interconnection point (see Route 1 on Figures 2-1 and 2-2).

The interconnection of the OMGP would require modification of the existing Miguel-Tijuana 230 kV transmission line, thereby requiring an amendment to Presidential Permit 68 as discussed in the following section.

2.2.1 Proposed Amendment to Presidential Permit (PP-68)

As discussed in Section 1.1 (Background), DOE issued Presidential Permit 68 to SDG&E in 1980 to construct, operate, and maintain the Miguel-Tijuana international transmission line between the U.S./Mexico border and the Miguel substation approximately 10 miles to the north. The Miguel-Tijuana line connects to the CFE system at the U.S. international border. Presidential permits are required for construction and operation of electric transmission lines that cross the U.S. international border. Before a Presidential Permit can be issued, the action must be found to be consistent with the public interest considering: 1) environmental impact; and 2) impact on electric reliability. Environmental impacts are assessed in accordance with NEPA. DOE considers the effect that the proposed project would have on the operating reliability of the U.S. electric power supply system – i.e., the ability of the existing generation and transmission system to remain within acceptable voltage, loading and stability limits during normal and emergency conditions. Standards that DOE applies include those of the North American Electric Reliability Council (NERC) and the standards of the member regional reliability councils and/or Independent System Operators.

The proposed project would involve modification of the Miguel-Tijuana international line, which would require an Amendment by DOE of Presidential Permit 68. Before DOE can amend Presidential Permit 68, DOE must make a determination that the project and associated modification of the Miguel-Tijuana line are in the public interest.

This EA addresses the environmental impact aspect of DOE's public interest determination for the proposed project. The interconnection studies performed by SDG&E and reviewed by the California ISO determined that the proposed project modifications to the Miguel-Tijuana line would not adversely impact electric reliability. DOE will consider the results of the findings in this EA as well as the findings in its independent electric reliability review in its decision on whether or not to approve an amendment to Presidential Permit 68.

2.2.2 Description of Proposed Project Components and Activities

2.2.2.1 Otay Mesa 230 kV Switchyard

The proposed Otay Mesa 230 kV switchyard is located on the northeast portion of the 46-acre Otay Mesa Generating Plant site. The proposed switchyard encompasses approximately 5 acres and would be constructed within the fenced boundary of the OMGP. The switchyard would be constructed simultaneously with the overall OMGP including site preparation and grading, drainage and erosion control, and equipment installation, site cleanup, and final landscaping activities. The primary components of the proposed switchyard are:

- Interconnections to step-up transformers at generating plant
- Switchyard control building
- Circuit breakers and disconnect switches
- Switchyard busses and towers.

A schematic diagram of the proposed switchyard function is presented on Figure 2-4. The Otay Mesa 230 kV switchyard would be constructed as an ultimate Breaker-and-a-Half, and be initially configured as a 5-element ring bus.

2.2.2.2 Loop in Miguel-Tijuana 230 kV Line to Otay Mesa Switchyard

Interconnection of the OMGP to the SDG&E electrical grid requires that the existing Miguel-Tijuana 230 kV transmission line be looped in (i.e., connected) to the new Otay Mesa 230 kV switchyard. Additionally, SDG&E and the California ISO have determined that the cross tripping protective scheme on the Miguel-Tijuana line will need to be transferred to the Otay-Tijuana 230 kV line.

The interconnection between the Otay Mesa 230 kV switchyard and the existing Miguel-Tijuana 230 kV line will involve construction of approximately 0.1 mile of new 230 kV transmission lines (3 circuits) between the pull off structures in the new switchyard (see Figure 2-3) and two new steel lattice, double circuit structures to be added and inserted in the existing Miguel-Tijuana line right of way. The new interconnection loop-in line would be suspended between the pull off structures in the switchyard and the new lattice structures to be inserted in the Miguel-Tijuana right of way to tap the existing line as shown on Figure 2-3. The design of the steel lattice, double circuit, deadend structures to be inserted in the Miguel-Tijuana right of way is shown on Figure 2-5. Alternately, steel pole structures (Figure 2-6) may be used instead of lattice steel structures. The loop in lines will be designed to provide at least 30 feet of conductor-to-ground clearance at the lowest point in the span under the maximum sag condition. The steel lattice, 230 kV structures will have anchor bolt

foundations. Access to the new structures will be via the existing SDG&E access road along the ROW in this area.

2.2.2.3 Reconductor Miguel-Tijuana 230 kV Line

SDG&E's 230 kV Miguel-Tijuana line consists of double-circuit construction on steel lattice structures. The existing conductor is a single 1033.5-kcmil ACSR "Ortolan" per phase. However, existing towers and fittings are designed for two such conductors per phase. Load-flow calculations indicate that this conductor will not be thermally adequate for the delivery of OMGP power to the SDG&E Miguel substation under certain system configurations.

The proposed transmission upgrades to interconnect the OMGP up to the Miguel substation include reconfiguring the existing 230 kV circuit from the Otay Mesa 230 kV switchyard site to Miguel into 2 separate circuits with two conductors per phase (i.e., 12 total conductors versus 6 that currently exist). The two bundled circuits are proposed to eliminate thermal overloads, and to maintain the reliability of the SDG&E system in accordance with applicable standards.

The portion of the existing Miguel-Tijuana line to be reconducted is shown on Figures 2-1 and 2-2. The 230 kV line from the new Otay Mesa switchyard to Tijuana would remain a twinned single circuit.

The proposed project will change the existing electric fields by a small amount compared with SDG&E's existing 230 kV lines (and 69 kV lines where parallel). This change is due to proposed bundling and phase re-arrangement of the two circuits. The estimated maximum electric field strength at the edge of the right of way following reconductoring is 0.18 kV/m. The estimated maximum electric field strength at this same location under existing conditions is 0.15 kV/m (i.e., project will increase by 0.03 kV/m). This is calculated using Bonneville Power Administration's Corona and Field Effects program with conductors at a minimum height of 30 feet at mid-span for the existing SDG&E 230 kV configuration. The electric field is not affected by the value of load carried by the line.

Overview of Construction Activities. Reconductoring of the existing Miguel-Tijuana 230 kV transmission line will require light vehicle access to each structure, and heavy equipment access to conductor pull sites at major angle points along the line and at double dead-end structures. Six pull sites will be needed to perform the reconductoring activities. The pull sites will typically require two working areas that are approximately 150 feet wide by 300 feet long. The southernmost pull site complex in the vicinity of the plant switchyard/0.1 mile interconnect to the Miguel-Tijuana line will require four working areas. The access road and trail network along the SDG&E right of way will be utilized during construction. No new roads are proposed. The existing SDG&E right of way is adequate for the proposed reconducted line. Limited, if any, vegetation clearing is expected to be required due to the

existing access and the lack of trees and large shrubs along the transmission route. The Otay Mesa switchyard and the Miguel substation will be used for material and equipment storage and laydown.

Reconductoring activities are expected to require 3-4 months to complete and the workforce is expected to range from 10 to 20 workers.

Following completion of reconductoring activities, disturbed portions of the right of way, tower bases, and pull site locations will be restored, as practical, in accordance with standard SDG&E practices, DOE's PP-68 stipulations, and CPUC GO 95, as applicable.

Operation and Maintenance. Reconductoring of the Miguel-Tijuana line between the plant site and the Miguel substation will not require any modification to the current operation and maintenance procedures employed by SDG&E along the right of way. SDG&E will continue to operate and maintain the transmission line and right of way in accordance with applicable SDG&E CPUC, and DOE/EPA guidelines and requirements, including those specified in PP-68.

Abandonment. SDG&E has no plans to abandon the Miguel-Tijuana 230 kV transmission line in the foreseeable future. The planned economic life of the OMGP is 30 years. If the OMGP is decommissioned in the future, SDG&E may apply for another amendment to the Presidential Permit to disconnect the Otay Mesa switchyard and remove the loop-in interconnection, as appropriate, based on electrical grid conditions at that point in time. Biological mitigation for the Otay Mesa switchyard developed as part of the CEC AFC process for the OMGP is based on the assumption that the switchyard area will be permanently disturbed as part of the overall Otay Mesa Generating Plant. Therefore, there are no current plans to reclaim the switchyard area should it be decommissioned in the future.

2.2.3 Applicant's Proposed Environmental Protection Measures

SDG&E and OMGC are committed to environmental protection. The impact assessments presented in Section 4.0 of this EA include consideration of the general measures presented in Section 2.2.3 as well as those discussed in Section 4.0. A summary list of applicant-committed environmental protection measures is presented in Appendix A.

2.2.3.1 Otay Mesa Switchyard

The Otay Mesa switchyard will be constructed as part of the overall Otay Mesa Generating Plant site development. Environmental protection measures will be implemented in accordance with the CEC's Compliance Conditions for the OMGP. The CEC's conditions consider input from San Diego County, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the public. As applicable, the Applicant is also committed

to implementing environmental protection measures for cultural resources, biology, soil erosion, and water resources in accordance with DOE's stipulations in PP-68. Although PP-68 does not address the Otay Mesa switchyard, the Applicant is committed to complying with the intent of DOE's measures.

2.2.3.2 Interconnect and Reconductoring of Miguel-Tijuana Line

SDG&E will construct, operate, and maintain the new, short 0.1 mile long interconnection and the portion of the Miguel-Tijuana line to be reconducted in accordance with standard SDG&E practices which stress environmental protection. Additionally, SDG&E will comply with the provisions of its Subregional Natural Community Conservation Plan for protection of sensitive biological habitat. SDG&E will also comply with DOE's stipulated environmental protection procedures in PP-68, including amendments. DOE's stipulations include compliance with CPUC GO 95 (CPUC, 1941), which includes requirements related to transmission line design and safety. The Applicant will also implement environmental protection measures specified in the CEC's Compliance Conditions, as applicable, for the transmission component of the project.

2.3 INTERRELATIONSHIP WITH OTHER PLANNED PROJECTS

2.3.1 Otay Mesa Generating Project

Otay Mesa Generating Company, LLC proposes to construct a nominal 510 megawatt (MW) combined cycle, natural gas fired power plant on east Otay Mesa adjacent to the existing Miguel-Tijuana 230 kV line (refer to Figures 2-1 and 2-2). The proposed interconnection project addressed in this EA is a subset of the overall Otay Mesa Generating Project. Refer to Section 1.1 (Background) for more information.

2.3.2 SDG&E Transmission System

Based on the California Independent System Operator's review (Cal ISO, May 19, 2000) of SDG&E's Facilities Study Final Report (dated May 9, 2000) for the Otay Mesa Generating Project, no project specific transmission system improvements beyond the Miguel substation are necessary to interconnect the OMGP to the SDG&E grid.

Figure 2-1
REGIONAL LOCATION MAP
(B&W; 8-1/2 x 11) (Landscape)

Figure 2-2

LOCATION OF PROJECT COMPONENTS

(B&W; 8-1/2 x 11, 3 pages) (Landscape)

Figure 2-2 (Continued)

Figure 2-2 (Continued)

Figure 2-3

**TRANSMISSION INTERCONNECTION FROM
SWITCHYARD TO MIGUEL-TIJUANA LINE**

(B&W; 8-1/2 x 11) (Portrait)

Figure 2-4

SCHEMATIC DIAGRAM OF SWITCHYARD FUNCTION

(B&W; 8-1/2 X 11) (Portrait)

(In progress, R Ray)

Figure 2-5

**TYPICAL CROSS-SECTION OF STEEL LATTICE
DEADEND STRUCTURE**

(B&W; 8-1/2 x 11) (Portrait)

Figure 2-6

TYPICAL CROSS SECTION FOR STEEL POLE STRUCTURE

(B&W; 8-1/2 x 11) (Portrait)